

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claim 1 has been revised. New claim 7 has been added. Support for the revisions and new claim can be found in, e.g., Figs. 1, 2A-B and 3, among other places. Claims 1-7 remain pending in the application.

Claims 1-6 are rejected under 35 USC 103(a) as being unpatentable over Rello (US 5,255,684) in view of Morley et al. (US 6,840,938). Applicant respectfully traverses this rejection.

Claim 1 requires an inserting portion including a swing mechanism and a grip portion including a motor for driving the swing mechanism, where the swing mechanism includes a shaft for transmitting the rotational movement of the motor to a transducer in the inserting portion. That is, the shaft is included in the swing mechanism, which, like the transducer unit, is included in the inserting portion, while the motor is included in the grip portion. Claim 1 also requires the shaft being oriented such that its longitudinal direction is parallel to a longitudinal direction of the insertion portion.

The present arrangement with the shaft being included in the inserting portion and oriented parallel to a longitudinal direction of the insertion portion allows an end of the shaft to be located in a vicinity of the transducer, which is also located in the inserting portion. This allows a first pulley and a second pulley to be located close to each other and thus allows a relatively shorter wire to be used for connecting the first and second pulleys and thus helps reduce loosening of the wire and further helps reduce displacement of the transducer unit. As a result, more precise ultrasound images can be obtained. In addition, the present arrangement with the first gear and second gear being connected by a wire helps prevent vibrations caused by gear transmission (see, e.g., page 2, lines 34-37, page 4, lines 9-12 of the specification and Figs. 1, 2A-B and 3, among other places).

Rello fails to teach or suggest a shaft being included in a swing mechanism, which is included in an inserting portion of an ultrasonic probe as required by claim 1. Instead, Rello merely discusses a first housing 10 to be inserted into a body cavity of a patient and a second housing 21 including a motor 22 to remain outside the body of the patient (see Rello, col. 3, lines 28-33 and Figs. 1, 2, 6). As clearly illustrated in Figs. 2

and 4 in Rello, the output driver shaft 22b in Rello is coaxial with the drive motor 22 and is within the housing 21 in which the motor 22 is located, rather than the housing 10 where the transducer 12 is located. That is, the output driver shaft 22b in Rello is not included in the housing where the transducer is located and thus is distinct from the invention of claim 1. In fact, the rotational movement of the drive motor 22 is transmitted from the shaft 22b in the housing 21 to the transducer 12 in the housing 10 by flexible connections 26 and 38, rather than by a shaft (see Rello, col. 3, line 63 to col. 4, line 10, and Figs. 1, 2, 6). This is completely distinct from the present invention, which requires the shaft to be included in the inserting portion.

Nor does Rello teach or suggest the shaft being oriented such that its longitudinal direction is parallel to a longitudinal direction of the insertion portion, as required by claim 1. Instead, Rello discusses a shaft having a longitudinal direction that is perpendicular to a longitudinal direction of the first housing 10 (see Rello, Fig. 1). This is completely distinct from the invention of claim 1.

Moreover, Rello fails to provide any reason to expect that the advantages enjoyed by the present invention, reducing loosening of the wire and further helping reduce displacement of the transducer unit, could be achieved. Specifically, according to Rello, the flexible connections 26, 38 are provided inside the flexible tube 42 so that the end of the endoscope that is to be inserted into the body cavity of the patient is bendable. In other words, the configuration in Rello is not intended to make the flexible connections 26, 38 shorter by orienting the shaft 22b parallel to the longitudinal direction of the housing 10 such that the shaft 22b can extend into the housing 10.

Even assuming arguendo that the shaft 22b in Rello were to be modified to be parallel to the longitudinal direction of the housing 10, the modification would render Rello inoperable for its intended purpose. As clearly shown in Fig. 6 of Rello, the housing 21 is connected to the housing 10 flexible connections 26, 38 to allow the end of the flexible endoscope to be bent upward, downward and sideways to as it is passed through the body to the body cavity at which imaging is to take place (see Rello, col. 3, lines 56-61, col. 4, lines 1-6 and Figs. 1, 2, 6). If the shaft 22b were to be parallel to the longitudinal direction of the housing 10 and extended from the housing 21 to the housing

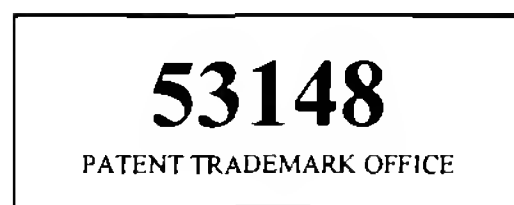
10, the end of the flexible endoscope would not be flexible and thus would not be able to be bent upward, downward and sideways. Therefore, Rello provides no teachings or suggestions of a shaft with a longitudinal direction being parallel to a direction in which a motor and a transducer unit are connected, as required by claim 1.

Morley et al. do not remedy the deficiencies of Rello. Morley et al. merely discuss a bipolar surgical instrument that includes opposing grips that can engage the tissue, including cables 86 and 88 that extend through a lumen to transmit rotational movement to end effector elements 78 and 80. Morley et al. provides no teachings or suggestions of the invention of claim 1.

Moreover, the present record fails to provide any teachings or suggestions that would lead one of ordinary skill to use the pulley connection in Morley et al. to modify Rello. In fact, Rello uses bevel gears 32, 34 to transmit power for a short distance, i.e., to oscillate the transducer (Rello, col. 3, lines 20-32). As a result, the references of record would not suggest using the pulley transmission for preventing vibration caused by gear transmission, as an advantage enjoyed by the present invention.

For at least these reasons, claim 1 is patentable over Rello in view of Morley et al. Claims 2-6 depend ultimately from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claims.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.




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Respectfully submitted,

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